WHAT IS CLAIMED IS:

1. An exercise apparatus for enabling reciprocating motion of the user's legs or feet while the user remains generally stationary, said apparatus comprising:

a stationary frame;

a first longitudinal rail supported, at least partially, by said frame;

a second longitudinal rail supported, at least partially, by said frame and in generally parallel relation with said first rail;

a first foot carriage assembly movably engageable along said first rail and pivotally fixed to deflect angularly downward from an inactive position upon application of pressure thereon by a user;

a second foot carriage assembly movably engageable along said second rail and pivotally fixed to deflect angularly downward from an inactive position upon application of pressure thereon by a user;

an inertia drive assembly disposed proximate said first and second rails and drivable upon movable operation of at least one of said first and second carriage assemblies, said drive assembly including

a first continuous belt rotatably engageable with said first carriage assembly, said first continuous belt being positioned relative to said first carriage assembly such that said first continuous belt deflects downwardly upon engagement with said first carriage assembly; and

a second continuous belt rotatably engageable with said second carriage assembly said second continuous belt being positioned relative to said first carriage assembly such that said second continuous belt deflects downwardly upon engagement with said second carriage assembly;

a first suspension system for supporting said first belt; and

a second suspension system for supporting said second belt;

wherein each of said first and second suspension systems includes a resilient support assembly responsive to deflection of said first or second belt upon frictional engagement between said first or second belt and one of said carriage assemblies.

2. The apparatus of claim 1, wherein each of said resilient support assemblies is interconnected with said first or second belt so as to add tension to said belt upon frictional engagement between said belt and one of said carriage assemblies and such that the added tension increases as said carriage assembly deflects further downwardly from said inactive position.

3. The apparatus of claim 1, wherein each of said resilient support assemblies includes a spring device interconnected with said first or second belt such that said spring device is resistant to deflection of said belt and such that the resistance of said spring device increases at a varying rate as said carriage assembly deflects further downwardly from said inactive position.

4. The apparatus of claim 3, wherein each of said resilient support assemblies includes a movable pulley interconnected with said spring device, such that said spring device is resistant to shifting of said movable pulley, said first or second belt being rotatably supported about said movable pulley.

5. The apparatus of claim 4, wherein said movable pulley is supported on an arm member pivotable about a pivot point and shiftable upon deflection of said first or second belt, said movable pulley being arcuately movable about said pivot point upon loading of said belt by one of said carriage assemblies.

6. The apparatus of claim 3, wherein each of said carriage assemblies includes a coupling member having an engagement surface for frictionally engaging one of said belts, wherein each of said carriage assemblies is releasably pivotable from said inactive position relative to one of said belts to a position wherein said engagement surface frictionally engages said belt and is movable therewith, wherein each of said belts is adapted to bias said carriage assembly toward said disengaged position.

7. The apparatus of claim 6, further comprising a spring device interconnected with said movable pulley and responsive to shifting of said movable pulley, thereby biasing said belt to urge said carriage assembly toward said disengaged position.

8. The apparatus of claim 7, wherein said drive assembly and said first or second carriage assembly are interconnected such that, as said first or second carriage assembly initially advances rearwardly or forwardly, said drive assembly accelerates said first or second carriage assembly up to a predetermined velocity without the user having to exert additional force to accelerate said carriage assembly.

9. The apparatus of claim 3, wherein each of said first and second carriage assemblies is frictionally engageable with one of said first and second belts to drive said belt in a first direction when said first or second carriage assemblies is moved in said first direction, and wherein said first or second carriage assemblies is disengageable from a substantially frictionally engaged relation with said belt to move in a second direction opposite said first direction.

10. The apparatus of claim 9, wherein said first and second carriage assemblies are interconnected by a common continuous belt such that said first carriage assembly can be accelerated in said second direction through movement of said second belt by said inertia drive assembly and said second carriage assembly can be accelerated in said second direction through movement of said first belt by said inertia drive assembly, wherein said common continuous belt interconnects said first carriage assembly and said second carriage assembly such that when said first carriage assembly is moved one direction, said second carriage assembly is moved in an opposite direction.

11. The apparatus of claim 3, wherein said inertia drive assembly includes a drive shaft and a first energy device rotatably coupled with said drive shaft, said inertia drive assembly being disposed proximate said first and second rails and engageable with said first and second carriage assemblies such that, as said first or second carriage assembly initially advances from a point of change in direction along one of said rails, said first energy device can accelerate said carriage assembly; and

a second energy device distinct from said first energy device, said second energy device being engageable with said inertia drive assembly and adapted to transmit energy thereto.

12. The apparatus of claim 3, wherein said carriage assemblies and said suspension systems are positioned such that each said carriage assembly is pivotable from said inactive position to a second position whereat said carriage assembly is disposed in a generally horizontal orientation, said increase in spring resistance being substantially more pronounced as said carriage assembly moves closer to said second position.

13. An exercise apparatus for enabling reciprocating motion of the user's legs or feet while the user remains generally stationary, said apparatus comprising:

a stationary frame;

a first longitudinal rail supported, at least partially, by said frame;

a second longitudinal rail supported, at least partially, by said frame and in generally parallel relation with said first rail;

a first foot carriage assembly movably engageable along said first rail and pivotally fixed such that said first foot carriage assembly deflects angularly downward through an angular path from an inactive position upon application of pressure thereon by a user;

a second foot carriage assembly movably engageable along said second rail and pivotally fixed such that said second foot carriage assembly deflects angularly downward through an angular path from an inactive position upon application of pressure thereon by a user;

an inertia device disposed proximate said first and second rails and drivable upon movable operation of at least one of said first and second carriage assemblies;

a first resilient support assembly positioned relative to said first carriage assembly so as to be responsive to angular deflection of said first carriage assembly by imparting a resistant force on said first carriage assembly and against pressure applied thereon; and

a second resilient support assembly positioned relative to said second carriage assembly so as to be responsive to angular deflection of said second carriage assembly by imparting a resistant force on said second carriage assembly and against pressure applied thereon, wherein each said resilient support assembly is configured such that said resistant force increases at a varying rate as said first or second carriage assembly deflects through said angular path.

14. The exercise apparatus of claim 13, wherein each said resilient support assemblies includes a spring extendable upon angular deflection of said first or second carriage assembly, to impart a resistant force thereon.

15. The exercise apparatus of claim 15, wherein said spring is interconnected with said carriage assembly such that said spring extends at a generally increasing rate as said carriage assembly deflects through said angular path.

16. The apparatus of claim 15, wherein said angular path of each said carriage assemblies extends from said inactive position to a position corresponding to a generally horizontal position of said carriage assembly.

17. The apparatus of claim 16, wherein said resilient support assembly is configured such that the resistant force imparted by said spring is substantially increased as said carriage assembly approaches said generally horizontal position.

18. The apparatus of claim 15, wherein said resilient support assembly includes a crank interconnecting said spring with said carriage assembly.

19. The exercise apparatus of claim 14, wherein each said resilient support assembly includes a continuous belt rotatably engageable with said first or second carriage assembly, said continuous belt being positioned relative to said first or second carriage assembly such that said continuous belt deflects downwardly upon engagement with said first or second carriage assembly; and

wherein said continuous belt is operatively positioned intermediate said first or second carriage assembly and said spring is interconnected with said spring such that downward deflection of said continuous belt linearly extends said spring at a rate that increases as said first or second carriage assembly deflects through said angular path.

20. The apparatus of claim 19, wherein each of said resilient support assemblies includes a movable pulley rotatably supporting said first or second continuous belt, said movable pulley being supported on an arm member pivotable about a pivot point and shiftable upon deflection of said first or second belt, such that said movable pulley is arcuately movable about said pivot point upon loading of said belt by one of said carriage assemblies, and wherein said spring device is interconnected with said movable pulley such that said spring device is resistant to shifting of said movable pulley.

21. The apparatus of claim 13, wherein each said resilient support assembly includes an elastic band supportably engageable with said first or second carriage assembly and stretchable upon angular deflection of said first or second carriage assembly.

22. The apparatus of claim 21, wherein each said resilient support assembly includes a cam surface positioned intermediate said carriage assembly and said elastic band, said cam surface being engageable with said elastic band upon deflection of said first or second carriage assemblies.

23. The apparatus of claim 22, wherein each said cam surface is shaped such that, as said carriage assembly deflects through said angular path, an area of engagement between said cam surface and said elastic band shifts said elastic band imparts said resistant force on said carriage assembly at an increasing rate.

24. The apparatus of claim 13, wherein said resilient support assembly is characterized by a non-linear spring constant.

25. The apparatus of claim 13, wherein each said resilient support assembly is fixed to said first or second longitudinal rail.

26. The apparatus of claim 13, wherein each said resilient support assembly includes an elastic device and an intermediate deflection element operatively positioned intermediate said elastic device and said first or second carriage assembly such that said intermediate element is directly engageable with said first or second carriage assembly and movably responsive to angular deflection of said first or second carriage assembly, and wherein said elastic device is directly engageable with said intermediate element such that movement of said intermediate deflection element in response to angular deflection of said first or second carriage assembly causes said elastic device to stretch and impart a resistant force thereon.

27. The apparatus of claim 26, wherein said intermediate deflection element is directly movably responsive to angular deflection of said first or second carriage assembly, and said elastic device is positioned relative to said intermediate deflection element such that movement of said intermediate deflection element stretches said elastic device at a rate that increases as said first or second carriage assembly moves through said angular path.

28. The apparatus of claim 26, wherein said intermediate deflection element is a crank attached to said first or second carriage assembly, and said elastic device is a linearly extendable spring attached to said crank.

29. The apparatus of claim 26, wherein said intermediate deflection element is a cam surface directly attached to said first or second carriage assembly and said elastic device includes an elastic band supportably engageable with said cam surface.

30. The apparatus of claim 26, wherein said intermediate deflection element includes a continuous belt supportably engageable with said carriage assembly and a moveable pulley shiftable upon deflection of said continuous belt, and wherein said elastic device includes a linearly extendable spring interconnected with said moveable pulley.

31. An exercise apparatus for enabling reciprocating motion of the user's legs or feet while the user remains generally stationary, said apparatus comprising:

a stationary frame;

a first longitudinal rail supported, at least partially, by said frame;

a second longitudinal rail supported, at least partially, by said frame and in generally parallel relation with said first rail;

a first foot carriage assembly movably engageable along said first rail and pivotally fixed to deflect angularly downward from an inactive position through an angular path upon application of pressure thereon by a user;

a second foot carriage assembly movably engageable along said second rail and pivotally fixed to deflect angularly downward from an inactive position through an angular path upon application of pressure thereon by a user;

an inertia device disposed proximate said first and second rails and drivable upon movable operation of at least one of said first and second carriage assemblies; and

a first resilient support assembly positioned relative to said first carriage assembly such that a resistant force is imparted on said first carriage assembly in response to angular deflection thereof; and

a second resilient support assembly positioned relative to said second carriage assembly such that a resistant force is imparted on said second carriage assembly in response to angular deflection thereof; and

wherein each said resilient support assembly is configured such that said resistant force increases at a non-linear rate as said first or second carriage assembly deflects through said angular path.

32. The apparatus of claim 31, wherein each said resilient support assembly includes an elastic device and an intermediate deflection element operatively positioned intermediate said elastic device and said first or second carriage assembly such that said intermediate deflection element is directly engageable with said first or second carriage

assembly and movably responsive to angular deflection of said first or second carriage assembly, and wherein said elastic device is directly engageable with said intermediate element such that movement of said intermediate deflection element in response to angular deflection of said first or second carriage assembly causes said elastic device to stretch and impart a resistant force thereon.

33. The apparatus of claim 32, wherein said intermediate deflection element is directly movably responsive to angular deflection of said first or second carriage assembly, and said elastic device is positioned relative to said intermediate deflection element such that movement of said intermediate deflection element stretches said elastic device at a rate that increases as said first or second carriage assembly moves through said angular path.

34. The apparatus of claim 32, wherein said intermediate deflection element includes a linkage assembly pivotally attached with said first or second carriage assembly, and said elastic device is a linearly extendable spring connected with said linkage assembly.

35. The apparatus of claim 32, wherein said intermediate deflection element is a cam surface directly attached to said first or second carriage assembly, and said elastic device includes an elastic band supportably engageable with said cam surface.

36. The apparatus of claim 32, wherein said intermediate deflection element includes a continuous belt supportably engageable with said carriage assembly and a movable pulley shiftable upon deflection of said continuous belt, and wherein said elastic device includes a spring interconnected with said movable pulley such that said spring is linearly extendable in response to shifting of said movable pulley.

37. The exercise apparatus of claim 32, wherein said elastic device includes a spring extendable upon angular deflection of said first or second carriage assembly, said spring being interconnected with said intermediate deflection element and said carriage assembly such that said spring extends at a generally increasing rate as said carriage assembly deflects through said angular path.

38. The apparatus of claim 37, wherein said angular path of each said carriage assembly extends from said inactive position to a position corresponding to a generally horizontal position of said carriage assembly.